

2004

ANNUAL REPORT



Marine Institute
Foras na Mara

SERVING SCIENCE AND THE SEA

To the Minister for Communications, Marine and Natural Resources

In accordance with the requirements of the Marine Institute Act, 1991, I have the honour of presenting the Annual Report and Statement of Accounts of the Marine Institute for the year ended 31st December 2004.

John P. Crowley, Chairman.

The Marine Institute is the national agency which has the following general functions:

‘to undertake, to co-ordinate, to promote and to assist in marine research and development and to provide such services related to marine research and development, that in the opinion of the Marine Institute will promote economic development and create employment and protect the marine environment.’

Marine Institute Act 1991

Do Aire Cumarsáide, Mara agus Acmhainní Náúrtha

Do réir na riachtanas atá leagtha síos san Acht um Fhoras na Mara, 1991, is cúis onóra dom an Tuarascáil Bliaintúil agus na Cúntais do Fhoras na Mara don bhliain dár chríoch 31u Nollaig, 2004 a thíolacadh.

Séan P. Ó Cruadhlaoidh, Cathaoirleach.

Is é Foras na Mara an ghníomhaireacht náisiúnta a bhfuil na feidhmeanna ginearálta seo a leanas aici:

‘taighde agus forbairt mara a ghabháil de láimh, a chomhordú, a spreagadh agus cuidiú leis sin agus cibé seirbhísí a ndáil le taighde agus forbairt mara a chur ar fáil ar seirbhísí iad, i dtuairim an Fhorais, a spreagfaidh forbairt eacnamaíoch agus a chruthóidh fostaíocht agus a chosnóidh an timpeallacht mhara.’

An tAcht um Fhoras na Mara, 1991

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INTRODUCTION AND ORGANISATION STRUCTURE

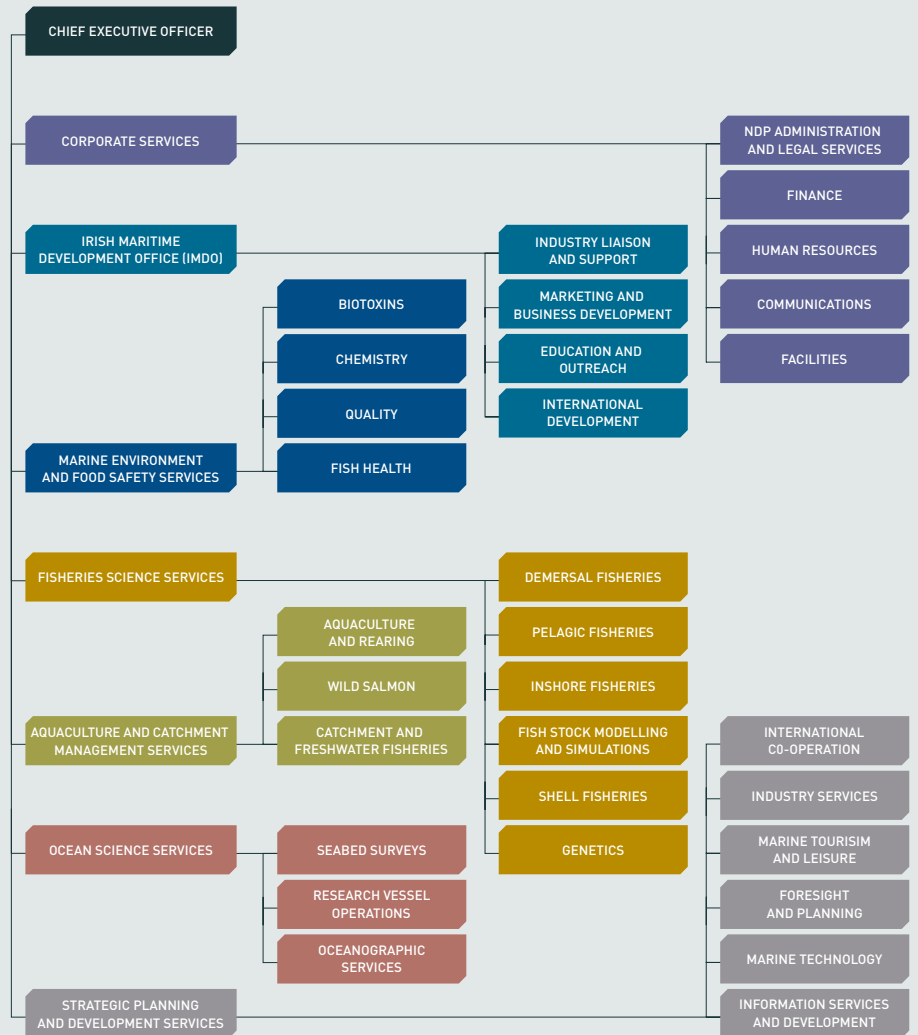
INTRODUCTION

In line with its vision statement of Ireland as – ‘A thriving maritime economy in harmony with the ecosystem and supported by the delivery of excellence in our services’ – the Marine Institute is structured to provide both government and industry with a wide range of services supporting sustainable marine development. The Institute undertakes scientific services, conducts research, facilitates and participates in research partnerships, manages the national Marine RTDI Funding Measure and provides information on international marine RTDI funding opportunities.

To provide these services to the highest degree of excellence, and to plan for future developments, the Institute is structured into seven Service Teams, as outlined below.

This report highlights the key deliverables and progress made towards our vision during 2004.

ORGANOGRAM



BOARD MEMBERS

1. Dr. J. P. Crowley (Chairman)

(Reappointed 2003 - 2005)

M.V.B., M.R.C.V.S., B.Ag.Sc., Ph.D., Dr Crowley has had a distinguished career in agricultural research (An Foras Taluntais) and as general manager, South Western Services Co-Op, Bandon, Co. Cork. He also holds qualifications in Public Management (Institute of Public Administration), in Marketing (Harvard Business School) and in Co-Op Management (Irish Management Institute).

2. Mr. Fergus Cahill (1996-2006)

A former Naval Officer and Chief Executive Officer of the Irish National Petroleum Corporation (INPC), Mr. Cahill is currently Chairman of the Irish Offshore Operators' Association and Marine Technical Development Services Ltd.

3. Ms Mary Dooley (2002-2007)

A Fellow of the Institute of Chartered Accountants in Ireland, a member of the Financial Executives Association and of a number of commercial, cultural and charitable organisations. She has held senior management positions in the entertainment, pharmaceuticals, health and education industries in Ireland, working with Ryan Hotels Plc., Warner Communications Inc., Bristol Myers Inc., St. James Hospital and the National University of Ireland, Galway.

4. Mr. Richie Flynn (2001-2006)

Mr. Flynn is currently the executive secretary of IFA's Fish Farming Section incorporating the Irish Salmon Growers' Association and the Irish Shellfish Association. He holds the position of Chairman of the EU Commission's Aquaculture Advisory Committee and of the Environment Committee, Federation of European Aquaculture Producers.

5. Capt. Dave Hopkins (2000-2006)

A master mariner since 1976, Capt. Hopkins is a director of Irish Mainport Holdings and Hopkins Communications Ltd. Vice President of the International Federation of Shipmasters, council member of the Irish Chamber of Shipping and the Emergency Rescue and Recovery Vessel Association and Chairman of the Irish Offshore Services Association.

6. Mr. Joey Murrin (1998-2003)

Formerly Chairman and Director of Bord Iascaigh Mhara and CEO of Killybegs Fishermens' Organisation. Chairman of the National Salmon Commission.

7. Mr. John O'Carroll (2001 - 2006)

Mr O'Carroll is currently involved in aquaculture production and marketing.

8. Ms Terry Fleming (2004-2009)

Director in the Tax and Legal Services Division, of PricewaterhouseCoopers and an Associate of the Irish Taxation Institute. Ms Fleming

graduated from UCD in 1984 with a 1st Class Honours Degree and subsequently obtained her Professional Diploma in Accounting from Dublin City University. She joined PricewaterhouseCoopers in 1985 as a graduate and progressed to her current position where she is responsible for a portfolio of major Irish and multinational corporate clients, both publicly quoted and privately owned. Her areas of expertise are Due Diligence/Risk Reviews, Acquisitions/Takeovers, Revenue Audits and Taxation compliance.

9. Sean O'Donoghue (2001-2006)

CEO of Killybegs Fishermen's Organisation, Mr O'Donoghue has a long established career in fisheries management working in the Department of Marine and BIM for twenty years prior to his present position. He has played a key role in a number of important fisheries issues such as fleet renewal and modernisation, TACs and quotas negotiations and the review of Common Fisheries Policy. He is chairman of the North West Pelagic Management Committee and represents the European Association of Producer Organisations on working group IV of the EU Commissions' Advisory Committee on Fisheries and Aquaculture.



CHAIRMAN'S STATEMENT

During 2004 the Marine Institute grew in capability in terms of infrastructure, expertise and reputation towards our vision of Ireland as a thriving maritime economy. Enormous progress was made in mapping our 220 million acres of territorial seas in the largest single marine survey programme in the world – the Irish National Seabed Survey (INSS) in collaboration with the Geological Survey of Ireland and conducted from our research vessel *RV Celtic Explorer*. This project has provided a wealth of data on depth, bottom type and underwater resources, as well as a library of breathtaking three-dimensional images, some of which were made available in the form of a colour calendar for 2005.

During the first six months of 2004 the Institute played a role on the world stage when hosting four important events during Ireland's Presidency of the European Union. In March, an important stakeholder meeting between the fishing industry, conservation interests and government agencies was hosted under the banner of the International Council for the Exploration of the Seas (ICES) to explore the adoption of a truly 'ecosystem approach' to fisheries management.

In May, the heads of fisheries and aquaculture laboratories from all over Europe (EFARO) gathered in Galway to discuss results and joint programmes. And in June a larger meeting, the International Conference on Molluscan Shellfish Safety (ICMSS) convened to discuss advances in the study of shellfish health. But by far the most significant event of the year was our hosting of the EurOcean 2004 international event in Galway in May, attended by marine experts from all over the world. This meeting was historic in that it gave rise to 'The Galway Declaration' – an agreement endorsed by all those present which called for greater emphasis to be placed on research into our seas and oceans in future European funding programmes.

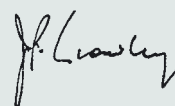
That Declaration has already borne fruit in subsequent presentations delivered by the Institute at European level, in pursuit of greater recognition for the marine sector in the European Commission's Seventh Framework Programme of research funding.

It was gratifying to observe the rising walls and roofs of our new headquarters and laboratory facility at Oranmore, Co. Galway. In October, I had the privilege to attend the 'topping out' ceremony to mark the completion of the building to roof level and to meet with those responsible for the timely completion of this stage of the project.

As part of that day, I also enjoyed the educational 'Pirate Party' arranged by the Institute for children from four primary schools in Oranmore, at which a 'treasure chest' time capsule of items prepared by the children was buried on the site. This event, to me, cements our ties with the Oranmore community and also with the future generation that will inherit our 220 million acres under the sea.

As always, the work of the Marine Institute was underpinned by a strong focus on our corporate governance. I am indebted to the Board Internal Audit Committee, who ensured that an effective system of internal financial control was maintained that supported the achievement of Marine Institute policies, aims and objectives during the year.

2004 was my last year as Chairman of the Marine Institute. It has been an honour and a privilege to serve in this way and I would like to thank my colleagues on the Board, the Chief Executive, Senior Management and Staff of the Institute for their support during what, for me, has been a most exciting and enjoyable experience.



Dr. J. P. Crowley
Chairman : Marine Institute



CHIEF EXECUTIVE'S REPORT

2004 saw the successful navigation of the change management challenges involved in the move to temporary headquarters at the Galway Technology Park while allowing the Institute to focus on its core service delivery programmes, as laid down in the both our Service Level Agreement with the Department of Communications, Marine and Natural Resources (DCMNR) and our own Corporate Plan.

I am glad to report strong performance across all area, as well as the following highlights:

The Institute's Infrastructure Programme continued to make excellent progress with the Oranmore development on schedule and on budget, reaching the 'topping out' point of completion on the main structural elements in September.

Operation of the two research vessels was extremely effective with record productivity levels, the carrying out of the Irish National Seabed Survey offshore by the RV *Celtic Explorer* and in nearer waters by the RV *Celtic Voyager*, as well as groundfish and acoustic surveys in collaboration with industry advisors.

At Burrishoole, the investment made in additional infrastructure also paid dividends in terms of expanded work programmes into the complex mechanisms of salmonid migrations and the awarding of major research contracts under the AQUAREG and the preparatory phases of the SALSEA programmes described in this report.

During Ireland's Presidency of the EU the Institute was able to maximise the value of several events hosted in Dublin and Galway, including the EurOcean 2004 international conference.

The Institute's performance in a number of key areas has led to the development of a number of commercial services, including marine survey work and acoustics, as well as the use of research infrastructure, equipment and data products to generate revenue in support of further common-good research.

With the development of such services has come the achievement of improved quality and accreditation, including the INAB and Excellence Through People standards, both externally and independently audited. We continue to hold a strong portfolio of externally-funded international research projects, each of which is carefully aligned with our core programme of national services.

We have seen an increase in growth and innovation in the marine sector as a whole, from National Development Plan projects administered by the Institute, from a growing initiatives portfolio and from ILO services and supports at both national and international levels, such as the Trident and Aquareg projects.

This work has allowed us to generate not only raw data, but added value information services and products, such as our Data Warehouse and other developments within the framework of the 'information society'.

Encouraging progress was achieved in creating an Irish maritime services cluster through the promotional efforts of the Irish Maritime Development Office (IMDO).

We have also promoted the concept of Ireland as a maritime nation through our communications programme, including schools outreach, our web page at www.marine.ie, and an increasing number of technical and popular publications.

During the year, I had the honour of chairing the Irish Council for Science, Technology and Innovation (ICSTI) Task Force on the Irish position with respect to the EC 7th Framework Programme (2007-2011). One recommendation of this Task Force was that 'marine related research should receive greater prominence in FP7 and Ireland supports the calls for marine science to become an innovative, cross-cutting horizontal element across the different pillars and priority themes of the next Programme.'

This recommendation was brought forward to the Office of Science and Technology in the Department of Enterprise, Trade and Employment 'Irish Position Paper for the Negotiations on the 7th Framework Programme' (January 2005) and endorsed by the Cabinet Sub-Committee on Science and Technology.

Finally, we are laying the groundwork for the future with significant progress on the preparatory and research phase of a National Research and Innovation Strategy for marine RTDI in Ireland from 2006-2012, which will be brought to fruition in 2005 after extensive consultation with both Foresight and Stakeholder Groups.



Dr. Peter Heffernan
Chief Executive : Marine Institute



CORPORATE SERVICES

DIRECTOR'S STATEMENT

2004 was a year of ongoing change in the Institute while work on the purpose-built headquarters and laboratory at Oranmore overlooking Galway Bay, moved ahead on schedule. Several significant developments were made within Corporate Services in 2004 to optimise the service offered to other services areas within the Marine Institute, and to external customers. During the year this bore fruit, resulting in the Institute being awarded the prestigious Excellence Through People accreditation, developing an environmental policy for each of its locations, forging links with the schools in the Oranmore and Galway areas through its educational outreach activities, and hosting four very successful EU Presidency Events. In addition, the development of new and efficient accounting and leave systems enable Corporate Services to ensure the Institute is well positioned to maximise opportunities and to ensure a responsive, professional and dynamic service in a time of ongoing change and growth.

- Excellence Through People Accreditation, the Institute, led by Human Resources, achieved this award in September, which is Ireland's national standard for human resource development.
- Implementation of Navision – this highly efficient management information and financial system was implemented over an eight month period in 2004. It allows complete and user friendly access to financial information for managers and is an effective accounting solution. It has been broadly welcomed by both corporate services and Institute managers.
- Efficiency Programme – a comprehensive efficiency programme was introduced in 2004 to build on previous initiatives.
- Environmental Policy – this was developed in 2004 to include a policy statement, guidelines, a legal register, an asset register and annual audits.
- Irish Presidency Events – four high profile EU conferences were hosted over three months with in excess of 1500 delegates and were widely regarded as having been extremely successful.
- Our ongoing commitment to excellence in our compliance with the Government Guidelines for State Bodies and the Ethics in Public Office Act 1995, by introducing a Vendor List, a comprehensive Fixed Asset Register and a Cost Benefit Analysis system. We continue to strengthen our commitment to excellence in our Corporate Governance.
- The RV *Celtic Explorer* was also host to 300 local secondary school students in Galway in December and some 200 students from Oranmore primary schools were entertained at a special 'Pirate Party' to introduce them to the Marine Institute and to lay a time capsule containing items specially prepared by each class on the site of the new building to be opened



HUMAN RESOURCES

A very successful recruitment campaign saw the addition of 17 new staff and 20 internal appointments. The Marine Institute won the Excellence Through People accreditation award for general staff development and communication. The Institute fully embraced the continual development of PMDS recommended along with the need to be more efficient, the promotion of stable industrial relations and improved customer service standards, under the National Sustaining Progress Programme. Training, health and safety and environmental care were all treated as priorities, with a central Marine Institute Health and Safety Statement produced covering all facilities. There were no major accidents or incidents reported during 2003.

ENVIRONMENT

The Marine Institute Environmental & Waste Management Policy continues to be a live, working document. To accompany the Policy, there is an Environmental Statement outlining the specific objectives of the Marine Institute and an Environmental Booklet to give staff tips on actions that can be taken to be more environmentally friendly both at home and at work.

in the year 2104. The ship also played host to schools from the Carlingford area, while docked in Greenore early in the year, and to schools from all over Dublin at Sir John Rogerson's Quay during the St. Patrick's Day celebrations.

- A new Corporate Identity was developed and incorporated into all communications tools and media within the Institute, and has been very well received.

Chepbe

Ms. Caroline Hepburn
Director : Corporate Services



ACCOUNTS

A full financial report is contained in the second part of this report.

COMMUNICATIONS

The Marine Institute accelerated its communications programme in 2004 in order to raise national and local awareness of the marine resource as a national asset and encourage education on its sustainable development. Significant media coverage, including national TV, radio and press, was secured for a number of events including those organised as part of the EU Presidency. The Institute library facility at Abbotstown was maintained and continued to supply a valuable service to both internal and outside clients. There were over a million [1,023,402] successful requests for pages from the MI website at www.marine.ie during 2004, an increase of 10.9% over 2003.

FACILITIES

Considerable support was provided to facilitate the increased staffing level at the Galway Technology Park interim headquarters, as well as to plan for the eventual move of staff to Oranmore and from Abbotstown to either Oranmore or Harcourt Street.

FINANCE

The accounts department of the Institute continued to supply a high level of service to the other teams including payroll, purchasing, assistance with tendering and the prompt payments to all suppliers, account and budget reporting and Travel and Subsistence claims which will do much to increase the overall efficiency of the organisation. Statutory responsibilities by way of regular reportage to the Department of Communications, Marine and Natural Resources, audits and adherence to public procurement practice were also maintained.

THE ROLE OF CORPORATE SERVICES IS TO PROVIDE A QUALITY SUPPORT SERVICE THAT PROMOTES, ADVISES, COMMUNICATES AND ASSISTS WORK ACROSS THE ORGANISATION IN A FRIENDLY AND EFFICIENT MANNER.



IRISH MARITIME DEVELOPMENT OFFICE (IMDO)

DIRECTOR'S STATEMENT

The Irish shipping services sector continued to make steady overall progress in 2004. The high added value service sectors in particular enjoyed better growth due to stronger domestic and global markets. The seagoing sector in contrast saw a fall in employment for the first time in five years. However an industry analysis undertaken by the Marine Institute in 2004 identified that over 8,145 people were directly employed within the Irish shipping services sector, making it the largest sub sector of the Irish marine economic base. The sector contributed an estimated €1.45 billion to the economy in 2004 again making it the largest sector by value.

The key developments in 2004 which the office played a central or key role included:

- Submission of PRSI refund report January and subsequent confirmation of a new seven year scheme based on this proposal by Government in December.
- Presidency of the European Shortsea Network (ESN) January to June.
- Launch of first ESN Annual Report during Irish Presidency.
- Key strategic direction presentation to European Commission on behalf of ESN.
- Support eight Irish projects under Marco Polo I & II programmes.
- Assisted in the success of one Irish project to secure €1m EU program aid.
- Third consecutive annual increase in Irish merchant registered fleet since introduction of Tonnage Tax.
- Presentation of second (draft) Mercantile Registry Bill to DCMNR & Minister.
- Submission of second tax-leasing report to DCMNR.
- Two foreign Inward investment projects secured by IMDO.
- Restructuring of Irish Seafarer training program and launch of 'C-farer' payments scheme. Increase in foreign ship placements for Irish cadets.
- Launch of International Maritime Services Institute by Minister Ahern in September
- Opening of the National Maritime College in Cork, October.
- More capacity, new routes and services added to Irish maritime supply chain.
- Over €150 billion in goods using the Irish maritime ports and shipping supply chain.
- Launch of the Irish Maritime Transport Economist, March.

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The high value-added service segment of the sector saw further encouraging signs of growth with new major international companies establishing dedicated Irish service operations.

AIB became the second major Irish bank to establish dedicated International shipping finance operations in Ireland, seeking to take a share of this multi-billion dollar industry. Other areas such as ship finance, ship management, legal, and shipbroking have also seen new additions to the market in '04.

The short sea market continues to be categorized by the steep change that has occurred in Irish trading patterns over the last decade with the continued growth of unitized trade. IMDO research indicates that both roll on/roll off and load on/load off modes grew by 6% in 2004.

- Overseas development missions carried out in nine countries including a Ministerial trade development mission to US in March.
- Launch of Inter-European Trade Corridors report and Seminar by Minister Pat 'The Cope' Gallagher TD in November 2004.
- Excess of 602,000 hits on IMDO web portal – 11.6% increase on 2003. Third consecutive annual increase of web traffic.



Mr. Glen Murphy

Director: Irish Maritime Development Office (IMDO)



In 2004 a number of new short sea lo/lo services commenced, the Ireland to Rotterdam route alone saw a 10% increase capacity with three new services commencing in the last quarter of the year including a new direct container service from Shannon-Foynes to Rotterdam. However, higher operating costs as a result of a combination of firm charter hire rates and record fuel prices have resulted in the withdrawal or termination of some short sea routes in 2004. This includes the decision by Seacat to terminate its Dublin to Liverpool passenger and car service for which it cited competition from low cost airline operators as an additional prevailing market factor. Elsewhere P&O axed its Rosslare to France freight service as part of the Groups overall restructuring of its ferry business. The IMDO were delegated the responsibility to locate a replacement operator on this vital strategic route and a new shipowner is expected to commence operations in 2005. The office will undertake a strategic review of all state aids available for the short sea/ferry sector in 2005 and expect to make a proposal to Government with key recommendations for the industry.

The international cruise industry has experienced very significant growth over the past five years and offers Ireland further potential as it continues to be the fastest growing sector in the global travel and leisure industry. In March the office

supported a Ministerial trade development mission to the United States. The cruise industry alone contributed in excess of an estimated €75m to the Irish economy in 2004 with a 23% increase in foreign passenger numbers of which 53% were from the United States.

In 2004 two major international world-class centres of excellence were established. In October the new National Maritime College of Ireland opened at Ringaskiddy in County Cork. The €58 million euro college will train merchant marine and Irish Naval Service cadets. It is expected that foreign cadets will also train there. Meanwhile, in Dublin, another new third level maritime initiative supported by the Irish Government opened at the National College of Ireland. In September it commenced its first year of a new BA in International Shipping. This new facility is located in the heart of the Irish Financial Services Centre in Dublin. The seafarer training grant scheme administered by the IMDO also underwent a major overhaul in 2004.

In January the Minister appointed a new Advisory Group to the office, which will again be chaired by Mr Padraic White for a further two year period.

THE IRISH MARITIME DEVELOPMENT OFFICE HAS A STATUTORY MANDATE TO PROMOTE GROWTH IN THE IRISH SHIPPING SECTOR AND TO ATTRACT TO IRELAND ADDITIONAL MARINE RELATED OPERATIONS, ALONG WITH KEY PLAYERS IN INTERNATIONAL SHIPPING AND ANCILLARY SERVICES.



MARINE ENVIRONMENT AND FOOD SAFETY SERVICES

DIRECTOR'S STATEMENT

2004 was a very busy and productive year for the MEFS Services group. The highlights included:

- Hosting the 5th International Conference on Molluscan Shellfish Safety in Galway in June, attended by over 300 delegates from 40 countries, in co-operation with the FSAI, BIM, NUIG and the Irish Shellfish Association. In November 2004, MEFS staff took part in the Stakeholder Conference on the EU Marine Strategy in Rotterdam.
- The Institute worked closely with the Food Safety Authority of Ireland (FSAI), in accordance with the Service Contract, carrying out over 12,000 tests during 2004 in a wide range of monitoring programmes for the seafood sector. MEFS staff participated in 49 decisions of the Management Cell, which has proven to be a very effective tool for the proactive management of the risks posed by marine biotoxins.
- By the end of 2004, a total of 19 test methods had been submitted for INAB/ISO 17025 accreditation in the areas of Shellfish Safety, Residues and Marine Environmental Chemistry.
- MEFS continued to extend its varied research programme with both Irish and International Partners including BOHAB (Biological Oceanography of Harmful Algal Blooms); ASTOX (Azaspiracid Standards Isolation and Toxicology); Resource Assessment of Mussels in the Irish Sea; and Brown Ring Disease in Clams. Major new research projects that were successfully won included MATSIS (Methods of Assessment of Trophic Status in the Irish Sea) an InterReg IIIA funded programme and BIOTOX an EU 6th Framework Project on validation of alternative methods for biotoxin analysis.
- MEFS provided advice to the Department of Communications, Marine & Natural Resources, dealing with Foreshore Lease and Licence Applications, Dumping at Sea applications, aquaculture licences and monitoring, shellfish

safety, monitoring plans under the 79/923 Directive on Shellfish Growing Waters and 91/492 Directive on live bivalve molluscs and various aspects of fish health.

Michael O'Sinnéide

Mr. Micheal O'Sinnéide

Director: Marine Environment and Food Safety Services



SEAFOOD SAFETY - BIOTOXINS

As the EU Designated National Reference Laboratory for Marine Biotoxins in Ireland, the Marine Institute provides a weekly monitoring service for all shellfish harvesting areas. Results are issued weekly by fax, e-mail and SMS text messages to industry and regulators. In 2003, an online Harmful Algal Blooms database (HABS) was developed and all results are published on the Institute website at www.marine.ie/habsdatabase

6,616 analyses were carried out on shellfish samples by LC-MS and bioassay in 2004, with 86% of results issued within three working days of receipt of the sample in the laboratory. AZP toxins were virtually absent from shellfish in 2004 with none exceeding the regulatory limit. The main toxins detected were Okadaic Acid and DTX-2. A comparison of the mouse bioassay and LC-MS method of testing showed 99% agreement.

Research partnerships included BOHAB – 'Biological Oceanography of Harmful Algal Blooms off the west coast of Ireland', and ASTOX – 'Isolation and purification of azaspiracids from naturally contaminated materials and evaluation of their toxicological effects'.



MARINE CHEMISTRY

In 2004, oysters and mussels from 28 locations nationwide were tested for trace metals, PCBs and pesticides. Monitoring of contaminant concentrations in seawater from shellfish growing areas was also undertaken in collaboration with BIM. Similar tests were also carried out on a range of fish species landed at five Irish ports and a broad testing programme for unauthorised substances, veterinary residues and environmental contaminants was undertaken on fish farms. Monitoring for environmental contaminants was also carried out in accordance with the OSPAR Co-ordinated Environmental Monitoring Programme (CEMP) and data were reported to the ICES databank for assessment by OSPAR and the EEA. MEFS staff continued to participate in expert committees such as the DCMNR Marine Licence Vetting Committee (MLVC), Water Framework Directive advisory groups and also OSPAR, ICES and European Marine Strategy expert groups.

Research collaborations included - MATSIS (Interreg IIIa funded) 'Methods of Assessment of the Trophic Status of the Irish Sea'; a major survey of Persistent Organic Pollutants in fish with FSAI and BIM; 'Integrated Approach to the Toxicity Evaluation of Irish Estuarine Sediments' with DIT.

FISH HEALTH

The Fish Health Unit (FHU) supports the aquaculture industry and the inland fisheries sector in maintaining Ireland's superior fish health status, providing both statutory services (in line with EU Directives) and diagnostic support. As the National Reference Laboratory for both fish and shellfish diseases, members of FHU participated in two Annual Reference Laboratory meetings, in Brussels and in Weymouth, England.

In 2004, all marine and freshwater finfish farm sites were inspected and sampled for the presence of notifiable diseases as per Council Directive 91/67/EEC. All native oyster growing areas were tested twice per year (spring and autumn) for the presence of the parasites *Bonamia ostrea* and *Marteilia refringens*. In all, 2,237 finfish sites and 414 shellfish sites were examined for diagnostic purposes during the year.

Fish Health Unit staff supported the Steering Group on Pancreas Disease (PD) research which initiated a series of research projects, including epidemiology of PD on Irish finfish sites, the biophysical properties of the PD virus and smolt susceptibility trials. The Marine Institute convened a seminar on PD research in Galway during October 2004 for industry members, veterinarians and international research partners. The Institute also funded a lectureship in Fish Pathology and Marine

Science at the Faculty of Veterinary Medicine in UCD. The work programme will include a PhD level research project on the pathogenesis of the PD virus in salmon. The FHU jointly supervised a PhD project on diseases of clams, at UCC.

Advice was provided to a wide range of clients including DCMNR, the EU Commission, OIE and industry, the Irish Fish and Shellfish Health Advisory Committee (IFSHAC), the EU Commission, [DG SANCO] and the ICES Working Group on Pathology and Diseases of Marine Organisms.

THE MEFS TEAM COMPRISES 50 SCIENTISTS, BASED IN DUBLIN AND GALWAY, WHO CARRY OUT A WIDE RANGE OF RESEARCH AND MONITORING TASKS IN THE AREAS OF MARINE ENVIRONMENT AND SEAFOOD SAFETY.

THE MI'S FOOD SAFETY PROGRAMMES PROVIDE A SOLID BASIS FOR THE IRISH SEAFOOD SECTOR TO MEET EU REGULATIONS AND TO ENSURE FULL CONSUMER SAFETY FOR THE IRISH AND EXPORT MARKETS.



FISHERIES SCIENCE SERVICES

DIRECTOR'S STATEMENT

2004 marked the year when Fisheries Science Service (FSS) began to fully exploit the opportunities offered by the research platform of the RV *Celtic Explorer*, with the first ever joint international acoustic survey involving Russia, Ireland, Holland and Norway. FSS personnel also held three key chair positions with the International Council for the Exploration of the Sea (ICES) dealing with mackerel and whitefish stock assessment and with the move towards integrated ecosystem advice.

During Ireland's Presidency of the EU in 2004, FSS played a key role in several important meetings hosted by the Institute including the ICES Dialogue Meeting on the Ecosystem Approach, the Dundalk Conference on Smart Fishing and the meeting of European Fisheries and Aquaculture Research Organisations (EFARO). FSS also secured over €2 million from the EU to improve the quality of data collection, a key element of the drive for improved fisheries advice. FSS continued its close dialogue with the Department of Communications, Marine

and Natural Resources and other stakeholders by keeping industry abreast of developments in scientific advice at regular meetings. The FSS management team undertook training in team building and project management in order to focus programmes on a more project-orientated basis.



Dr. Paul Connolly
Director : Fisheries Science Services



ASSESS

In 2004 FSS staff spent 1,160 scientist-days at sea on missions on the RV *Celtic Explorer* and the RV *Celtic Voyager*. These surveys involved a large amount of staff resources, in their preparation, execution and follow up actions. The international groundfish survey was carried out in October-November and studied the shelf area around Ireland to assess the abundance and distribution of fish resources. This survey also mapped the seabed. Both sets of data will be used to describe essential fish habitats.

Irish input into the International Mackerel Egg Survey was carried out in May and July on the RV *Celtic Explorer* and the RV *Celtic Voyager* and this data was used in the analysis of the state of the 2004 mackerel stock. Ireland also participated in the International Acoustic Blue Whiting Survey with Norway, Russia and Holland and assessed spawning aggregations off the West coast of Ireland. Further herring acoustic surveys were conducted in the Celtic Sea and off the Donegal Coast in January and October. Underwater TV



RESEARCH

Research played a key role in the FSS work programmes for 2004. FSS worked closely with Third Level institutions in the provision of samples and the supervision of projects on genetics, biology, modelling and simulation. FSS worked with NUI Cork on PhD projects on the biology of hake, the biology of blue whiting, egg and larval distributions around Ireland and on the modelling and simulation of fish stock recovery plans.



surveys were used to assess the size of the Dublin Bay Prawn stocks on the important commercial fisheries in the Irish Sea and around the Aran Islands.

A special survey was conducted during the spawning season to assess maturity stages and size at maturity for the main commercial stocks. Sea time played a pivotal role in the collection of scientific data for input into the advisory process. FSS staff also participated on international herring surveys off Norway and on acoustic surveys of orange roughy in New Zealand.

An integral part of FSS work involves sampling of fish stocks at sea and at commercial ports. Data on the age profile of the catch are also collected. A total of 500,000 fish were measured during the year and 20,000 fish aged for use in age-based assessment models.

FSS also worked on various EU-funded international projects that examined herring stocks of the coast of Ireland (WESTHER), the allocation of resources

to support fisheries management (EASE) and projects aimed at building a European research area on fisheries to support the Common Fisheries Policy (MUTFISHARE). FSS continued to work with BIM in various projects including modelling and simulation of the use of different fishing gears, crab tagging and the impact of closed areas on juvenile cod.

Data collection and assessment programmes were also carried out on non-TAC species such as crab, whelk, and shrimp in close cooperation with BIM, the results of which were included in the Stock Book and resulted in several scientific publications.

ADVISE

The provision of high-quality scientific advice is a key deliverable in the FSS work programme. The Stock Book was published in 2004 and for the first time moved towards integrated ecosystem advice. The Stock Book was published in hard copy, CD and web-based versions.

FSS scientists participated in over 14 ICES working and study groups focused on stock assessment, survey planning, enhanced communications with stakeholders and improved data collection methodology. FSS also participated in key meetings at ICES and with the European Commission on the formulation of fisheries advice for 2005.

FSS also held regular meetings with industry to discuss the results of surveys, collection of data and the current state of fish stocks. At the Fish Ireland 2004 Exhibition in Killybegs, FSS focussed on the importance of the advisory process to sustainable fisheries management with a major stand displaying the process of fish stock assessment at sea.

THE PRIMARY ROLE OF FSS IS TO RESEARCH, ASSESS AND ADVISE ON SUSTAINABLE EXPLOITATION OF LIVING MARINE RESOURCES IN THE WATERS AROUND IRELAND.

THE PRIMARY CUSTOMERS OF FSS ARE DCMNR, EU, INDUSTRY AND THIRD LEVEL. THE MAIN PRODUCT OF FSS IS SCIENTIFIC ADVICE ON STOCKS OF INTEREST TO IRELAND AND THIS IS ENCAPSULATED IN THE ANNUAL FSS 'STOCK BOOK' PRODUCED BY THE TEAM EACH DECEMBER.



AQUACULTURE AND CATCHMENT MANAGEMENT SERVICES

DIRECTOR'S STATEMENT

In June 2004 I was honoured to be elected the sixth President of the North Atlantic Salmon Conservation Organisation (NASCO) at its 21st annual meeting held in Reykjavik, Iceland. At the NASCO meeting the SALSEA proposal, in which ACMS played a major role, was accepted by the International Atlantic Salmon Research Board as the template for compiling a full North Atlantic study on marine survival of salmon. A major international workshop was hosted by ACMS in Dublin, in October to compile a detailed cooperative research programme to examine factors affecting survival of salmon at sea (SALSEA). The proposals will be formally presented to the NASCO Council in June but in the interim participating countries have been encouraged to seek cooperative funding for the preparatory programmes agreed at the Dublin meeting.

Other highlights included the launch of the second call for proposals under the EU funded AquaReg scheme. In total AquaReg is supporting 12 projects throughout Ireland, Norway and Spain. The BMW Region is involved with 10 of these and has been

allocated funding of €900,000. The total value of the AquaReg programme is €2.7 million.

In addition to its work with NASCO, ACMS (Dr Niall O'Maileidigh) chairs the Scientific Committee of the National Salmon Commission and for the third year, supported with advice the introduction of an agreed TAC for salmon. We also prepared advice for the 2005 salmon season. Dr O'Maileidigh also chairs the ICES Diadromous Committee and provided national input to the ICES North Atlantic Salmon Working Group. In addition to the supervision of tagging and release programmes for 390,000 ranched smolts countrywide ACMS also ran two pilot wild salmon tagging programmes on the Laune and the Suir.

The past year was particularly busy in relation to eel matters and ACMS has advised DCMNR in this regard and represented Ireland at a major EIFAC meeting in Poland, EU meetings in Brussels and a major ICES Working Group meeting in November in Galway.

ACMS hosted a meeting of the EU SALIMPACT study and attended the final meeting in the Netherlands, completed a second year of work with the Department of Fisheries and Oceans Canada on the endocrine project and attended meetings related to the EU CLIME programme. We also supported aspects of the national Water Framework Directive and were involved with the SUMBAWS sea lice management programme. The North Western Regional Fisheries Board and ACMS successfully negotiated a contract with Shell E&P Ireland Ltd in relation to baseline fish surveys in the Owenmore catchment and the first phase of this was completed in autumn 2004. We also secured a two year project with Coillte to review options for forests on western peatlands. This project will examine regeneration options for forest areas located primarily on blanket bog, which are environmentally sensitive or no longer economically viable.



Screw traps such as the one being installed by the MI and the Southern Regional Fisheries Board on the River Suir provide samples of wild smolts for tagging. With the introduction of new TACs for commercial salmon fisheries, attention has focussed on the mixed stock nature of the district commercial salmon fisheries and the possible impacts on stocks from neighbouring districts particularly those without a significant commercial fishery of their own. In 2003, ACMS initiated new wild smolt tagging or smolt release programmes on the Liffey, Suir and Laune with a view to providing specific information on the catch of these stocks in fisheries outside the home district.



EU SALIMPACT STUDY

The medium term objectives of ACMS are to: identify opportunities which will utilise to the full the unique Newport facilities; establish the Burrishoole catchment / Clew Bay complex as a centre for climate change / environmental research projects; profile the unique opportunities which the Newport rearing/trapping facilities offer in terms of fisheries and genetic research; refine and improve the scientific advice required to manage the salmon resource ; develop a suite of services to support the sustainable development of the Aquaculture industry.

Keneth J. Whelan

Dr. Ken Whelan
Director : Aquaculture and Catchment
Management Services



This EU funded project was successfully completed in September 2004. The three objectives of the project were: the refinement of molecular tools (markers) for screening of neutral genetic variation and genetic variation in immune response genes associated with the Major Histocompatibility Complex or MHC ; the spatial and temporal analysis of the impact of aquaculture on immune response genes using case studies and an assessment of the fitness differences among MH genotypes in field experiments. The MHC complex is thought to regulate the level of immune response in fish. Significant progress was made on all three of these objectives, and the results have been collated for the final report and are being prepared for publication in international journals.

In summary, the spatial and temporal analysis of trout and salmon populations was the first detailed inventory of Irish salmonid immunogenetic variation. Lower heterozygosity and allelic diversity was apparent at MHC markers in trout sampled from rivers with a history of aquaculture compared to those with no aquaculture. Indirect evidence of selection acting on MHC markers was also found in the sampled salmon populations, particularly in the temporal analysis (pre and post aquaculture). A field experiment conducted in the Burrishoole catchment directly addressed the fitness aspects of the study. There have

been few empirical demonstrations of selection acting on MHC loci in natural populations. By comparing genotype frequencies of fish surviving in the Srahrevagh River six months after their introduction as eggs with genotype frequencies expected from parental crosses, it was shown that selection occurred at a MHC class II locus. There was no evidence of selection at an MHC class I microsatellite locus or at eight non-MHC-linked microsatellite loci. Survival was associated with additive allelic effects rather than the alternative hypothesis of heterozygote advantage.

This is the first empirical evidence that MHC class II alpha genes in animal populations are under selection in the wild. The experimental results indicate that salmonid populations have the best chance of dealing with episodic and variable disease challenges if MHC genetic variation is preserved both among and within populations.

AQUACULTURE AND CATCHMENT MANAGEMENT SERVICES COMPRISES THREE SERVICE TEAMS LOCATED IN NEWPORT CO MAYO, GALWAY AND DUBLIN.

THE MAIN FUNCTIONS OF ACMS ARE TO RESEARCH, MONITOR, ANALYSE AND ADVISE IN THE AREAS OF: FIN FISH AQUACULTURE, SALMONID REARING, WILD SALMON & EEL STOCK DYNAMICS AND FRESHWATER CATCHMENT STUDIES



OCEAN SCIENCE SERVICES

DIRECTOR'S STATEMENT

Highlights for the year included:

- Successful warranty dry-dock of the RV *Celtic Explorer*.
- Successful delivery of schedule for RV *Celtic Explorer* from January to December (293 scientific days), well above the EU average for vessels of similar size of 222 days at sea.
- Successful delivery of the RV *Celtic Voyager* Programme (193 days).
- Successful commercial programmes on both vessels to secure external contribution to operational budget.
- EU tender process commenced for RV Technical Support (to be completed early 2005).
- Successful delivery of Seabed Survey Programme including major technical planning, recruitment, contracting of external services and improved coverage.

- Successful negotiation on an MOU on inter-agency co-operation with the Institute of Marine Research Bergen (to be signed in early 2005).
- Good arial coverage achieved on Irish National Seabed Survey Activities.
- Managed and implemented a range of value added and ancillary projects in the Irish National Seabed Survey (INSS).
- Successful seabed mapping on other MI programmes including groundfish and whitefish surveys.
- MESH (Development of a framework for Mapping European Seabed Habitats) project commenced, funded by the EU INTERREG IIIb measure.
- Deployment of a fifth buoy off the SE coast for the National Weather Data Buoy Network.
- Planning for the development of improved services in the data buoy programme (including increased instrumentation payload, data management services and web based services etc.).

- Initiation of various modelling activities including tidal atlas.
- Ongoing Improvement in equipment pool management.
- First gauge in the Irish Tide Gauge Network (Galway Port) reporting data (July 2004).
- Provision of instrumentation advice across the Institute and other agencies.
- Completion of historical analysis of underway oceanographic data from the research vessels.
- Significant liaison and participation in strategic international and European groups was a significant feature.
- Completion of the first ICES oceanographic section between Irish coast and Porcupine Bank.
- Successful completion of tidal atlas project.

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RESEARCH VESSEL OPERATIONS

The objectives of RV operations were to: Coordinate and manage the operation of the Marine Institute's two research vessels, the *Celtic Voyager* and the *Celtic Explorer* and provide support services to the users of the vessels, including instrumentation and engineering support services and extremely flexible operations.



SEABED SURVEY

The objectives of the seabed survey 2004 were: to conduct core survey activity in the National Seabed Survey 2002-2005, in conjunction with the Geological Survey of Ireland.

To develop and implement value-added products, services and ancillary projects from the Seabed Survey activity in order to maximise the potential of survey activity.

Michael Gillooly

Mr. Micheal Gillooly

Director : Ocean Science Services



OCEANOGRAPHIC SERVICES

2004 objectives for Oceanographic Services included: To provide comprehensive oceanographic services underpinning many national programmes. Key services include the management of the national equipment pool, management and operations of Irish Marine Data Buoy Network. Together with the Marine Institute Information Services and Development Group, Oceanographic Services provide significant input to the provision of a Data Centre service to the marine community in Ireland continuing the services of the former Irish Marine Data Centre.

2004 was the second year of existence for Ocean Science Services and was a year of continued growth in activity with considerable effort in planning and recruitment as well as delivering on a wide range of services.

The emphasis of 2004 was on building up and consolidating capability, which in time can provide integrated services to meet the operational requirements of national and international marine researchers. Considerable progress has been

made and with significant infrastructure and capability in place it is planned that the services will increasingly integrate both within OSS and into other service groups and marine RTDI teams nationally and internationally to focus on the provision of improved, high value for money and integrated services.

Considerable effort has been made to develop links both at national and international level in this regard and to evolve OSS into a group that provides comprehensive operational services to research clients and to utilise these practical services to support the Irish RTDI community. OSS has also been successful in securing commercial contracts which provided a valuable revenue line in 2004 and reduced the cost of the services to the Exchequer.

OCEAN SCIENCE SERVICES UNDERPINS MARINE RESEARCH PROGRAMMES BY PROVIDING EFFICIENT AND COST EFFECTIVE SERVICES, WHICH FACILITATE AND ADD VALUE TO MARINE RESEARCH ACTIVITIES.



STRATEGIC PLANNING AND DEVELOPMENT SERVICES

DIRECTOR'S STATEMENT

2004 was an extremely busy and exciting year for the Strategic Planning and Development Services group. The highlights include:

- The EurOCEAN 2004 Conference / Galway Declaration: In May 2004, the Marine Institute hosted the prestigious EurOCEAN 2004 Conference as an Irish EU Presidency Event (Galway: 10th - 13th May 2004). The Conference was attended by over 550 leading European marine researchers, policy makers and industrialists and included the presentation of strategic research papers, an exhibition area and networking opportunities. The Conference provided a major shop window for Irish marine science and infrastructures. The Conference endorsed the Galway Declaration (Appendix 9) which calls for a higher prominence to be given to marine science and technology in EU and Member State RTD Programmes.
- Our International Programme Section was actively engaged in working with our European partners to influence the definition of the scope and content of the EU 7th Framework Programme (2007 - 2011). Services also included active brokering and facilitation of new projects under the 6th Framework and INTERREG programmes (see Appendix 1).
- The Marine Institute in consultation with the Department of Communications, Marine and Natural Resources initiated preparatory work to pave the way for the development of a new National Marine Research and Innovation Strategy for the period 2006 - 2012. The Foresight and Planning Section initiated studies to quantify the economic value of the marine sector, a review of global marine markets and a climate change study. These studies will be published in 2005.
- In the Technology area we undertook a major study on the 'Potential Economic Benefits of Developing Ocean Energy in Ireland'. Work continues with Sustainable Energy Ireland to bring forward an Ocean Energy Strategy and R&D Implementation Plan in 2005.
- The NDP Section implemented a very successful Call for Proposals resulting in the awarding of €3.8 million in project funding (see Appendix 2).
- Our Information Services and Development Section (IS&D) had a busy year rolling out a range of new customer focused information services throughout the year. 2004 also saw the successful culmination of a number of projects under our ongoing Marine Data Warehouse Programme including the launch of the Institute's new Online Data Catalogue and accompanying Data Policy.
- The Tourism and Leisure Section published 'A National Survey of Water-based Activities in Ireland' and launched a new on-line information portal for businesses in the marine tourism and leisure sector.
- Our Industry Services Section dealt with over 200 queries from marine SMEs and advised 40 SMEs on project submissions for grant aid to various agencies.

MARINE TECHNOLOGY

Significant developments towards the delivery of an Ocean Energy Strategy in conjunction with SEI and the development of R&D capacity include:

- a high-level consultant's report on the economic benefit to Ireland of developing ocean energy.
- a protocol for ocean energy device developers
- proposals for the establishment of a test site for device developers.
- direct support to device developers.

Significant steps were also made towards the establishment of critical mass in a number of strategic areas (e.g. sensors and sensor systems for monitoring water quality in freshwater and marine environments).

INFORMATION SERVICES & DEVELOPMENT

IS&D provides Information Technology & Data Management Services to the Institute. Key deliverables in 2004 included the Information Society sponsored Data Warehouse Project (www.marinedataonline.ie) and a draft Institute Data Policy (www.marine.ie/datapolicy). Other applications included the online data buoy service (www.marine.ie/databuoy) the Harmful Algal Blooms service (www.marine.ie/HABS) a new on-line sea farer grants system (www.imdo.ie/seafarer) and a range of new IT services relating to the research vessels and fisheries data management.

A variety of new IT services including a new IT Help Desk and numerous business related services to help increase efficiencies and to enable remote working were also delivered.



- Marine Technology: The focus of work in the Marine Technology Programme was to identify and bring forward initiatives based on new and emerging marine technologies and industry sectors.
- Marine Biotechnology: The Institute hosted an international experts workshop to identify niche areas in marine biotechnology and is preparing a multi-centre biodiscovery programme initiative.
- Renewable Ocean Energy: in partnership with Sustainable Energy Ireland, a National Renewable Ocean Energy Strategy is being prepared.

Yvonne Shields

Ms. Yvonne Shields
Director : Strategic Planning
and Development Services



INTERNATIONAL PROGRAMMES

Irish researchers continued to compete well in competitive EU R&D Programmes winning over €12 million in grant-aid over the period 2000 - 2004 [Appendix 1]. To facilitate the dissemination of information on R&D funding opportunities, we published a Guide to EU R&D Funding Opportunities and a Directory of Irish Success (2000 - 2004). In November 2004, the Marine Institute became a core member of one of the new flagship EU ERA projects: MarinERA (2004 - 2008) which will work to seek better co-ordination and co-operation between European Member State Marine RTDI Programmes.

TOURISM & LEISURE

Key outputs of the Tourism & Leisure Programme included two publications: A National Survey of Water-based Leisure Activities in Ireland which provides essential statistics on the domestic market for seaside/resort trips, angling, coastal and inland boating and watersports; and Marine Recreation and the Process of Rejuvenation of Small Ports and Harbours which aims to increase awareness of the scope and potential for development of marine leisure activity. A further innovation was the establishment of an on-line portal (www.factsonline.ie) providing access to information on R&D, funding, marketing information, training, and other supports relevant to the sector.

INDUSTRY LIAISON SERVICES

A core component of the 2004 ILS work programme was the compilation of an Irish marine/maritime industries database. ILS has also been actively involved in two international INTERREG Projects: Aqua-Reg (www.aquareg.com) and TRIDENT [Marine Network Initiative linking Maritime regions of the Atlantic Arc: www.atlantictrident.com] and hosted the TRIDENT SME Renewable Energy Workshop in Cork in October 2004

NDP

The Marine Institute is the implementing body, on behalf of the Department of Communications, Marine & Natural Resources, of the €52 million National Development Plan Marine RTDI Measure (2000-2006). 2004 saw the continuing implementation of the RTDI Programme with over €3.8 million being allocated to a suite of competitive industry projects (6), strategic technology projects (5), mobility awards (20), conference sponsorship (6) and networking initiatives (5). A list of the 2004 Marine RTDI funded projects and initiatives are contained in Appendix 2 and NDP Marine RTDI Measure Reports published in 2004 are listed in Appendix 4.



GENERAL ADMINISTRATION

LIAISON

The programme of the Marine Institute covers a wide range of activities, that require close liaison and co-operation with many individuals and organisations. These include the Department of Communications, Marine and Natural Resources, Department of Finance and other government departments and state agencies, private enterprise and the higher education sector. The Institute acknowledges the continued support and co-operation of all concerned.

HEALTH AND SAFETY

In accordance with the Health and Safety and Welfare Act (1989), the Marine Institute has up-dated all Health and Safety Statements. The Institute continues to implement appropriate measures to protect the safety and health of all employees and visitors to its premises.

ETHICS AND PUBLIC OFFICE ACT

All persons holding a designated position within the Marine Institute provide a statement of interests to the Public Office Commission in accordance with sections 18 and 20 of the Ethics in Public Office Act, 1995.

EMPLOYMENT EQUALITY

The Marine Institute is committed to a policy of equal opportunity and adopts a proactive approach to equality. The Institute operates a number of schemes that provide staff with options in relation to meeting their career and personal needs, such as job sharing, study leave and educational programmes.

CODE OF PRACTICE (REPORTING)

The Marine Institute adheres to the statutory Codes of Practice for Governance of State Bodies as laid down by the Department of Finance. The Institute can confirm that Directors and employees have adopted and are trained on:

- Formal code of conduct on conflict of interest and customer charter.
- Properly Constituted Audit Committees.
- Procurement Procedures.
- Sensitive Issues.

APPENDICES

APPENDIX 1 // IRISH PARTICIPATION IN EU RTD PROJECTS UNDER THE FP6/INTERREG-III PROGRAMMES 2000-2004.

FP6. / 6TH FRAMEWORK PROGRAMME (2000-2006)

European Union Research (FP) and Regional Development (INTERREG) Programmes play a major role in facilitating and supporting Irish participation in pan-European marine research and regional development projects and initiatives.

During the period 2000-2004, forty six competitive marine projects with Irish participation received over €12 million in EU grant-aid:

- Under the 6th Framework Programme (FP6), 15 co-operative marine research projects are estimated to be worth over €4 million in RTD grant-aid to 11 Irish Marine Research Groups.
- Under INTERREG III, 31 co-operative projects are estimated to be worth €8.3 million in grant-aid to 20 Irish partner organisations.

To further facilitate the dissemination of information on R&D funding opportunities, the Marine Institute has published a **Guide to EU R&D Funding Opportunities (2004)**.

ALARM: Assessing large-scale environmental risks with tested methods.

Marine Organisms Investigations Ltd.

ACCENT: Atmospheric composition change: a European network.

National University of Ireland, Galway

MARBEF: Marine biodiversity and ecosystem functioning.

University College Cork; EcoServe Ltd

HERMES: Hotspot ecosystem research on the margins of European Seas.

National University of Ireland, Galway and Cork

HABIT: Harmful algal bloom species in thin layers.

National University of Ireland, Galway

SEED: Life history transformations among HAB species and the environmental and physiological factors that regulate them.

National University of Ireland, Galway

DAISIE: Delivering alien species inventories for Europe.

Marine Organisation Investigations Ltd.

MerSea: Marine environment and security for the European area.

TechWorks Marine Ltd.

SEAFOODplus.

University College Cork; University College Dublin; Teagasc

BIOTOX: Cost effective tools for risk management and traceability systems for lipophilic marine biotoxins in seafood.

Marine Institute; NUIG; Food Safety Authority; Oyster Creek Seafoods Ltd.

MarinERA: Co-ordination of national and regional activities in marine science in Europe.

Marine Institute

GMES: Global and Regional Earth-System Monitoring using Satellite and In-Situ Data.

National University of Ireland, Galway

NECESSITY: Nephrops & Cetacean Species Selection Information and Technology.

Bord Iascaigh Mhara; University College Cork

EFIMAS: Operational evaluation tools for fisheries and management options.

Marine Institute

MOTIIVE: Marine Overlays on Topography for Annex II Valuation and Exploitation.

University College Cork

INTERREG IIIA. IRELAND/WALES (2000-2006)

The use of ferries to observe water quality of the Irish Sea.

National University of Ireland, Galway

SMART:- Sustainable management of near shore water quality for aquaculture, recreation and tourism.

University College Dublin

Shellfish aquaculture in the Irish Sea- Detection and prevention of diseases in *Crassostrea gigas*.

University College Cork

Clean Coasts-I.

An Taisce

Leatherback turtles (*Dermochelys coriacea*) in the Irish Sea.

University College Cork

CoCoNet: Coastal Communities Network.

University College Cork

APPENDICES

APPENDIX 1 // IRISH PARTICIPATION IN EU RTD PROJECTS UNDER THE FP6/INTERREG-III PROGRAMMES 2000-2004.

CZM-Net: Coastal Zone Management Network.
Enterprise Ireland

PRISM: Predictive Irish Sea Models.
Enterprise Ireland

Development of Mussel Hatchery Techniques in Ireland / Wales.
University College Cork

MATSIS: Methods of assessment of trophic status in the Irish Sea.
Marine Institute

HABMAP: Habitat mapping for conservation and management of the southern Irish Sea.
Trinity College Dublin

MAPTURE: Mapping designated areas (Natura 2000 sites) in the Irish Sea INTERREG region.
University College Cork

INTERREG IIIB. ATLANTIC AREA

TRIDENT: Network of maritime SMEs connecting the maritime regions of the Atlantic area.

e-AQUA: Analysis of penetration of ICT and promotion of e-commerce within the SME's belonging to the aquaculture strategic sector of the Atlantic area.
Aqua TT Ltd. Bord Iascaigh Mhara

ICREW: Improving the environment and natural resources.
University College Dublin

COASTATLANTIC: Integrated coastal zone management: towards an Atlantic vision.
National University of Ireland, Galway; Údarás na Gaeltachta

NEMEDA: Network for the diminution of the effects of *Dinophysis* in aquaculture.
National University of Ireland, Galway; Marine Institute

SHARE: Sustainable Harvesting of *Ensis* (Razor Clams).
Bord Iascaigh Mhara

AAAG: The Atlantic Area Aquaculture Group.
University College Cork

ASAP: Atlantic arc salmon project.
Central Fisheries Board

AT-LIGHTS: Exploiting and alternative use of the Atlantic lighthouse.
South West Regional Authority

PORT-ATLANTIC: The small Atlantic fishing port.
South West Regional Authority

Planet Aqua (Planeta Azul): Accident prevention project and environmental learning.
Aqua TT Ltd.

INTERREG IIIB. NORTH WEST EUROPE (NWE)

MAYA II: Marinas and yachting II in the North Sea and Irish Sea.
Marine Institute; Donegal County Council; New Ross Town Council

MESH: Development of a framework for mapping European seabed habitats.
Marine Institute

CYCLEAU : Best practice in river and estuarine catchment management.
Moy Valley Resources Ltd

CorePoint.
University College Cork

INTERREG IIIC.

CoPraNet. Coastal practice network.
University College Cork

AquaReg.
BMW Regional Assembly, Marine Institute

EUROSAT : European Salmon Tour.
South West Regional Authority

For full details see:

Directory of Irish marine successes in the EU FP6 and INTERREG III Programmes.
51pp. Marine Institute (October 2004)

APPENDICES

APPENDIX 2 // NDP MARINE RTDI MEASURE 2004

The Marine Institute, on behalf of the Department of Communications, Marine & Natural Resources (DCMNR), and the Department of Enterprise, Trade & Employment (DETE) is the Implementing Agency for the NDP – Marine RTDI Measure (MRTDI) 2000-2006. Grant-aid is allocated on a competitive basis following public calls for proposals. Full details of grant-aid allocations to-date can be seen at www.marine.ie/marinertdi

The main objectives of the MRTDI Measure are:

- To support project based RTDI identified in a range of targeted areas.
- To enhance and consolidate the performance of the marine sector in Ireland through support for R&D and technology transfer activities.
- To provide the RTDI capacity to enable Ireland to fully utilise her marine resource potential in a sustainable manner.

By December 2004, some €41 million (77%) of the Marine RTDI budget of €52 million was expended and/or allocated to a variety of infrastructure and competitive MRTDI projects.

- Provision of Research Vessel - *Celtic Explorer I* €31,697,000.
- Laboratory Infrastructure Upgrade – seven Awards €268,541.

By December 2004, the MRTDI Measure has provided Grant-aid of over €9 million 122 Awards. Of this, €3,863,613 has been committed to a suite of 43 new projects in 2004.

New awards in 2004 included the following:

NETWORKING/TECHNOLOGY TRANSFER PROGRAMME 2004:

A total of 31 successful applicants were awarded Grant-aid totalling €25,550.

- 6 x Sponsorship for Workshops & Conferences €13,050.
- 20 x Mobility Awards €10,000.
- 5 x Other Networking/Technology €2,500.

APPLIED INDUSTRY 2004:

Total Grant-aid awarded to six new projects was €316,391 and advance payments of €126,557 representing 40% of total grant-aid were paid out in 2004.

IND/04/02: Acclimatization potential of Arctic Char (*Salvelinus alpinus*) to a marine environment.
Grantee: Stofnfiskur (Ireland) Ltd
Grant-Aid: €59,686

IND/04/05: Development of an alternative natural source of astaxanthin for the aquaculture market.

Grantee: Cybercolors Ltd.
Total Grant-aid: €58,500

IND/04/03: The research, development and implementation of alternative, reliable materials and methods for creating significantly less costly and/or better designed marine electronic enclosures.

Grantee: Marine Informatics
Total Grant-aid: €30,923

IND/04/13: Investigation of the bioactive potential on animal health of Fucoidan-rich products manufactured at different process levels from Irish brown Macro-algal resources.

Grantee: Oilean Glas Teoranta (OGT)
Total Grant-aid: €60,300

IND/04/04: The development of the next generation of heterogeneous telemetry modules for Marine Informatics Data Loggers.

Grantee: Marine Informatics
Total Grant-aid: €48,388

IND/04/12: Evaluation of selected biophysical properties of salmon pancreas disease virus (SPDV).

Grantee: Irish Salmon Growers' Association Ltd.
Total Grant-aid: €58,594

STRATEGIC PROGRAMME 2004:

OE/04/001: Strategic Team and Research Programme in Ocean Energy & Related Technologies.

Grantee: UCC
Total Grant-aid: €1,125,000

APPENDICES

APPENDIX 2 // NDP MARINE RTDI MEASURE 2004

STRATEGIC PROGRAMME IN ADVANCED TECHNOLOGIES 2004

AT/04/01/06: SMART Water Quality Monitoring System.

Grantee: NCSR/MAC (DCU)

Total Grant-aid: €903,780

AT/04/01/07: Demonstration of a Miniaturised Multi-channel Cytometry System and its Suitability for Autonomous Deployment.

Grantee: NCSR/UCC

Total Grant-aid: €472,220

AT/04/01/01: Marine Monitoring System based on Optical Sensing and Respirometry.

Grantee: UCC/ERI

Total Grant-aid: €450,108

*AT/04/02/02: Nucleic Acid Tests for Toxigenic Phytoplankton Species in Irish Waters.

Grantee: NDC/MI (NUIG)

Total Grant-aid: €433,144

POST DOCTORAL FELLOWSHIP

**PDOC/04/001: Identification of key non-technical issues and challenges and recommendations for an appropriate governance framework for biodiscovery activities.

Grantee: NUIG

Total Grant-aid: €137,420

** This figure may be revised down as it includes a claim for 25% Post Doctorate Pension Costs from NUIG.*

*** Grant-aid agreement has been sent to NUIG for signing. 5% allowed for pension contribution. NUIG to confirm that they accept this.*

APPENDICES

APPENDIX 3 // MARINE INSTITUTE PUBLICATIONS

SPECIAL REPORTS

The Stock Book: annual review of fish stocks in 2004 with management advice for 2005.

[2004] ISBN: 1-902895-24-X

The Irish Mackerel Fishery and the Making of an Industry.

Molloy, John (2004). 245 pp. Published by the Killybegs Fishermens' Organisation and the Marine Institute. ISBN: 1 – 902895-23-1

Status of Irish Aquaculture 2003 – A Report Prepared by Marine Institute, Bord Iascaigh Mhara and Taighde Mara Teo.

Parsons, A.; O'Carroll, T.; O'Cinnéide, M. and Norman, M. (2004)

Strategic review of the feasibility of seaweed aquaculture in Ireland.

Werner, Astrid; Clarke, Declan; Kraan, Stefan (2004). NDP Marine RTDI Desk Study Series reference: DK/01/008

Report on the coded wire tag returns for 2003: summary: Marine Institute 2004 Recovery Report.

O'Maoileidigh, Niall; Cullen, Anne; McDermott, Tom. (2004)

Proceedings of the 4th Irish marine biotoxin science workshop: Renvyle, Nov 7th, 2003

A Guide to EU RTD Funding Opportunities for the Marine Sector.

Mercer, M. and G.O'Sullivan (2004) 93pp. Marine Institute (2004)

A Directory of Irish Marine successes within the EU FP6 and INTERREG-III Programmes.

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DK/03/0061 61pp. (Marine Institute 2004)

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APPENDIX 5 // UPSTREAM CENSUS DATA FOR THE BURRISHOOLE SYSTEM, 2004

SPECIES	SALMON LEAP UPSTREAM 2004	MILL RACE UPSTREAM 2004	TOTALS UPSTREAM 2004	TOTALS UPSTREAM 2003	TOTALS UPSTREAM 2002
Wild Grilse	498	82	580	544	648
Wild Spring Salmon	22	06	26	18	02
Reared Grilse	769	193	962	1156	859
Wild Sea Trout	14	07	21	19	35
Wild Finnock	28	15	43	59	80
Wild Brown Trout	74	34	108	40	68

APPENDIX 5 // DOWNSTREAM CENSUS DATA FOR THE BURRISHOOLE SYSTEM, 2004

SPECIES	SALMON LEAP DOWNSTREAM 2004	MILL RACE DOWNSTREAM 2004	TOTALS DOWNSTREAM 2004	TOTALS DOWNSTREAM 2003	TOTALS DOWNSTREAM 2002
Wild Salmon Smolt	6672	2701	9373	7248	8625
Wild Sea Trout Smolt	688	55	743	787	1272
Silver Eel	2502	396	2898	3919	2863

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APPENDIX 6 // RESEARCH VESSEL PROGRAMME 2004

CELTIC VOYAGER

INSTITUTE	SCIENTIST / SERVICE AREA	DATES	LOCATION	DESCRIPTION
Marine Institute	MEFS	10/01/04 – 25/01/4	Irish Sea	Annual Nutrients Survey
Marine Institute	OSS	29/01/04 – 30.01.04	M4 Data Buoy	Data Buoy Maintenance
NUI Galway	Prof. Brendan Keegan	04/02/04 – 05/02/04	Cancelled	Marine Research
NUI Cork	Dr. Emer Rogan	09/02/04	Cork Harbour	Student Training
NUI Galway	Dr. Martin. White	12/02/04 – 17/02/04	Irish Sea	Optical Measurements
NUI Galway	Prof. Brendan Keegan	21/02/04 – 22/02/04	Kinsale	Student Training
Marine Institute	FSS	09/03/04 – 03/04/04	Irish & Celtic Sea, West Coast	Spring Groundfish Survey
Marine Institute	OSS	07/04/04 – 10/04/04	M3 Data buoy	Databouy Maintenance
Marine Institute	OSS	19/04/04 – 22/04/04	M4 Data buoy	Databouy Maintenance
SOC	Keith Birch	24/04/04 – 25/04/04	South Aran Islands	Databouy Recovery
TCD	Dr. Jim Wilson	30/04/04 – 31/04/04	Dublin Bay	Student Training
Dublin City Council	Tim O'Higgins	01/05/04	Dublin Bay	Biological Monitoring
Marine Institute	OSS	30/05/04 – 31/05/04	M4 Data Buoy	Databouy Maintenance
Marine Institute	OSS	17/06/04 – 21/06/04	M2	Databouy Maintenance
Marine Institute	FSS	23/06/04 – 30/06/04	West Coast	UW / TV Survey
RPII	Ciara McMahon	27/07/04 – 28/07/04	Irish Sea	Monitoring Radioactivity
Marine Institute	FSS	03/08/04 – 16/08/04	M1	Data Buoy Maintenance
Marine Institute	OSS	27/08/04 – 30/08/04	M1 & M2	Databouy Maintenance
Marine Institute	FSS	02/09/04-13/09/04	Irish Sea	UW / TV Survey
NUI Galway	Dr. Robin Raine	08/08/04 – 10/08/04	West Coast	BOHAB Project
Marine Institute	MEFS	15/08/04 – 25/08/04	West Aran Islands, West & NW Coasts	HAB Survey
Marine Institute	Dr. Fiona Fitzpatrick	04/10/04 – 26/11/04	Irish Sea	Seabed Survey
Marine Institute	OSS	01/12/04 – 03/12/04	M5 Data Buoy	Databouy Maintenance
Marine Institute	FSS	06/12/04 – 10/12/04	South East Coast	Seabed Mapping

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APPENDIX 6 // RESEARCH VESSEL PROGRAMME 2004

CELTIC EXPLORER

INSTITUTE	SCIENTIST / SERVICE AREA	DATES	LOCATION	DESCRIPTION
Marine Institute	FSS	07/01/04 – 24/01/04	N.W. Coast	Herring Acoustic Survey
NUI Galway	Dr. Martin. White	23/02/04 – 05/03/04	West of Ireland	Multi Disciplinary Survey
Marine Institute	FSS	22/03/04 – 06/04/04	West of Ireland	Blue Whiting Survey
Marine Institute	Dr. Fiona Fitzpatrick	13/04/04 – 16/04/04	West Coast	Seabed Survey
Marine Institute	FSS	19/04/04 – 09/05/04	West Coast	Mackerel Egg Survey
Marine Institute	Dr. Fiona Fitzpatrick	20/05/04 – 29/09/04	West Coast	Seabed Survey
NUI Galway	Dr. Martin White	01/10/04 – 10/10/04	West Coast	Multi Disciplinary Survey
Marine Institute	FSS	12/11/04 – 23/11/04	West Coast, Celtic Sea, Irish Sea	Groundfish Survey
Marine Institute	FSS	25/11/04 – 15/12/04	NE Atlantic	Herring Acoustic Survey

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APPENDIX 7 // FOREIGN MARINE SCIENTIFIC RESEARCH (MSR) ACTIVITIES IN IRISH WATERS IN 2004

COUNTRY	VESSEL NAME	DATES	RESEARCH ACTIVITY
Belgium	Belgica	03/06/04 – 16/06/04	Oceanography
France	Thalassa	12/11/04 – 11/12/04	Bottom Trawl Survey
Norway	Johan Hjort	18/05/04 – 11/06/04	Mackerel & Horse Mackerel Egg Survey
Germany	Walther Herwig III	07/07/04 – 14/07/04	Pollution Monitoring
Germany	Poseidon	03/08/04 – 17/08/04	Geo-biology of Carbonate Mounds
Germany	Alexander Von Humbolt	06/08/04 – 04/09/04	Hydrographic Survey
Netherlands	Pelagia	13/08/04 – 10/09/04	Cold Water Corals and Carbonate Mounds
Russia	Fridtjof Nansen	15/03/04 – 15/04/04	Blue Whiting & Mackerel Acoustic Survey
Spain	Visconda De Eza	07/09/04 – 02/10/04	Studies on Benthic and Demersal Fish Species
UK	Endeavour	29/04/04 – 19/05/04	Mackerel & Horse Mackerel Egg Survey
UK	Charles Darwin	01/07/04 – 30/07/04	Benthic Survey
UK	Endeavour	23/07/04 – 01/08/04	Mud Biotopes Survey
UK	Corytes	06/09/04 – 08/10/04	Sole, Plaice, Cod and Whiting Studies
UK	Endeavour	08/11/04 – 09/12/04	Groundfish Survey

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APPENDIX 8 // CONFERENCE AND WORKSHOP SPONSORSHIP IN 2004

MONTH	EVENT	DATES
January	ESAT Young Scientist Exhibition	
March	St. Patrick's Festival Dublin – Celtic Explorer Open to Public.	March 14th – 16th
April	ICES, Ecosystem Approach to Fisheries Stakeholder Meeting, Dublin Castle, EU Presidency Event.	April 26th – 27th
May	EurOcean 2004, EU Presidency Event, Galway.	May 11th – 13th
May	Meeting of directors of European Fisheries and Aquaculture Research Organisations (EFARO), EU Presidency Event, Galway.	May 13th – 15th
June	International Conference on Molluscan Shellfish Safety, EU Presidency Event, Galway.	June 14th – 18th June.
November	Galway Science and Technology Exhibition	

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APPENDIX 9 // EUROCEAN 2004 // THE GALWAY DECLARATION

CELEBRATING EUROPEAN MARINE SCIENCE // BUILDING THE EUROPEAN RESEARCH AREA // COMMUNICATING MARINE SCIENCE // GALWAY (IRELAND) 10TH – 13TH MAY 2004

To ensure that recognition is taken at Member State and European Community Level of:

- The crucial role of the oceans in climate, carbon cycle and Life on Earth.
- The major contribution maritime industries can make to the achievement of the objectives outlined in the Lisbon Agenda.
- The essential role of marine science and technology in generating the knowledge needed to fuel this economic achievement in harmony with the environment.
- The critical role the European Research Area / 7th Framework Programme must play in supporting world class excellence in marine science & technology.

The Irish EU Presidency **EurOCEAN 2004 Conference** (May 2004) was attended by over 550 marine researchers, policy makers and private sector representatives from all corners of the European Union. Organised by the European Commission, the Marine Institute (Ireland) and the European Science Foundation - Marine Board (ESF-MB), EurOCEAN 2004 concluded with the drafting and endorsement of the 8 page '**Galway Declaration**' which is summarised above.

The full text of '**The Galway Declaration**' is available at: www.eurocean2004.com

GLOSSARY OF ABBREVIATIONS

ACFM	Advisory Committee on Fisheries Management	ESF	European Science Foundation
ACMS	Aquaculture and Catchment Management Services (of the Marine Institute)	ESF-MB	European Science Foundation - Marine Board
ALO	Aquaculture Liaison Officer	EU	European Union
ARC	Aquaculture Research Committee	FATS	Fisheries Assessment Technicians
ASP	Amnesic Shellfish Poisoning	FHU	Fish Health Unit
AZP	Azaspracid Poisoning	FP6	Sixth Framework Programme
BIM	Bord Iascaigh Mhara (the Irish Sea Fisheries Board)	FSAI	Food Safety Authority of Ireland
CEFAS	Centre for Environment, Fisheries and Aquaculture	FSS	Fisheries Science Services
CEH	Centre for Ecology and Hydrology	GIS	Geographic Information System
CEO	Chief Executive Officer	GMIT	Galway Mayo Institute of Technology
CFP	Common Fisheries Policy	GSI	Geological Survey of Ireland
CMA	Connecticut Maritime Association	HABS	Harmful Algal Blooms Service
CTD	Conductivity, Temperature and Depth	HMRC	Hydraulics and Maritime Research Centre
DAF	Department of Agriculture and Forestry	ICES	International Council for the Exploration of the Seas
DARDNI	Department of Agriculture and Rural Development, Northern Ireland	ICT	Information Communications Technology
DAS	Data Acquisition System	IFA	Irish Farmers Association
DCMNR	Department of Communications, Marine and Natural Resources	IFREMER	Institute français de recherché pour l'exploration de la mer (French Research Institute for the Exploration of the Sea)
DG SANCO	European Commission Health and Consumer Protection Directorate	IFSHAC	Irish Fish and Shellfish Advisory Committee
DIT	Dublin Institute of Technology	IHO	International Health Organisation
DSP	Diarrhetic Shellfish Poisoning	ILAB	Irish Accreditation of Laboratories
DTX-2	Dinophysis Toxin - 2	ISA	Infectious Salmon Anaemia
EIFAC	European Inland Fisheries Advisory Commission	ISAV	Infectious Salmon Anaemia Virus
EPA	Environmental Protection Agency	ISEAS	Irish Seafarers Educational Assistance Scheme
ERA	European Research Area	ISPG	Irish Seafood Producers Group
		IT	Information Technology
		IMDO	Irish Maritime Development Office

GLOSSARY OF ABBREVIATIONS

INTERREG	EU Inter-Regional Co-operation Programme	R&D	Research and Development
LC/MS	Liquid Chromatography – Mass Spectrometry	RASATA	Rapid Azapriacid Shellfish Toxin Analysis
MARLAB	Fisheries Research Services Marine Laboratory	RPII	Radiological Protection Institute of Ireland
MEFS	Marine Environment and Food Safety Services (of the Marine Institute)	RTD	Research, Technology and Development
MHC	Major Histocompatibility Complex	RTDI	Research, Technology, Development and Innovation
MI	Marine Institute	RV	Research Vessel
MOU	Memorandum of Understanding	SCOFCAH	Standing Committee on the Food Chain and Animal Health
MSR	Marine Scientific Research	SDMS	Ships Data Management System
MTDS	Marine Technical and Development Services	SMEs	Small to Medium Sized Enterprises
NAB	National Accreditation Board	SPDS	Strategic Planning and Development Services
NDP	National Development Programme	STECF	Scientific, Technical and Economic Committee on Fisheries
NEAFC	North East Atlantic Fisheries Commission	STI	Science Technology and Innovation
NOAA	National Oceanic and Atmospheric Administration	TAC	Total Allowable Catch
NSC	National Salmon Commission	TCD	Trinity College Dublin
NUIC	National University of Ireland, Cork	UCC	University College Cork
NUIG	National University of Ireland, Galway	UETP	University Enterprise Training Partnership
NZ	New Zealand	UK	United Kingdom
OIE	Office International des Epizooties (World Organisation for Animal Health)	UN	United Nations
OSPAR	Oslo and Paris Convention (1992)	UNCLOS	United Nations Convention on the Law of the Sea
OSS	Ocean Science Services (of the Marine Institute)	UNICPOLOS	United Nations Informal Consultative Process on the Oceans and the Law of the Sea
OST	Office of Science and Technology	US	United States
PAD	Petroleum Affairs Division	USA	United States of America
PMDS	Performance Management Development Systems		
PSP	Paralytic Shellfish Poisoning		
QUASIMEME	Quality Assurance of Information for Marine Environmental Monitoring in Europe		

REPORT OF THE COMPTROLLER AND AUDITOR GENERAL

FOR PRESENTATION TO THE HOUSES OF THE OIREACHTAS

I have audited the financial statements on pages 5 to 16 under the Marine Institute Act, 1991.

RESPECTIVE RESPONSIBILITIES OF THE MEMBERS OF THE INSTITUTE AND THE COMPTROLLER AND AUDIT GENERAL

The accounting responsibilities of the Members of the Institute are set out on page 3. It is my responsibility, based on my audit, to form an independent opinion on the financial statements presented to me and to report on them.

I review whether the statement on the system of internal financial control on page 4 reflects the Institute's compliance with applicable guidance on corporate governance and report any material instance where it does not do so, or if the statement is misleading or inconsistent with other information of which I am aware from my audit of the financial statements.

BASIS OF AUDIT OPINION

In the exercise of my function as Comptroller and Auditor General, I conducted my audit of the financial statements in accordance with auditing standards issued by the Auditing Practices Board and by reference to the special considerations which attach to State bodies in relation to their management and operation.

An audit includes examination, on a test basis, of evidence relevant to the amounts and disclosures in the financial statements. It also includes an assessment of the significant estimates and judgments made in the preparation of the financial statements, and of whether the accounting policies

are appropriate to the Institute's circumstances, consistently applied and adequately disclosed.

I planned and performed my audit so as to obtain all the information and explanations that I considered necessary to provide me with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatement whether caused by fraud or other irregularity or error. In forming my opinion I also evaluated the overall adequacy of the presentation of information in the financial statements.

OPINION

In my opinion, proper books of account have been kept by the Institute and the financial statements, which are in agreement with them, give a true and fair view of the state of affairs of the Marine Institute at 31 December 2004 and of its income and expenditure and cash flow for the year then ended.



John Purcell

*Comptroller and Auditor General
22 December 2005*

STATEMENT OF RESPONSIBILITIES OF THE MARINE INSTITUTE

Section 12 of the Marine Institute Act, 1991, requires the Institute to prepare financial statements in such a form as may be approved by the Minister for Communications, Marine and Natural Resources. In preparing those financial statements, the Institute is required to

- Select suitable accounting policies and apply them consistently
- Make judgements and estimates that are reasonable and prudent
- State whether applicable accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements
- Prepare the financial statements on a going concern basis unless it is inappropriate to presume that the Institute will continue in operation.

The Institute is responsible for keeping proper books of account which disclose with reasonable accuracy at any time the financial position of the Institute and which enable it to ensure that the financial statements comply with Section 12(1) of the Act. The Institute is also responsible for safeguarding its assets and for taking reasonable steps for the prevention and detection of fraud and other irregularities.



Kevin Bonner
Chairman

Mary Dooley
Board Member

STATEMENT ON INTERNAL FINANCIAL CONTROL

On behalf of the Board of the Marine Institute I acknowledge our responsibility for ensuring that an effective system of internal financial control is maintained and operated.

The system can only provide reasonable and not absolute assurance that assets are safeguarded, transactions authorised and properly recorded, and that material errors or irregularities are either prevented or would be detected in a timely period.

The Board has taken steps to ensure an appropriate control environment is in place by:

- Clearly defining management responsibilities and powers;
- Establishing formal procedures for monitoring the activities and safeguarding the assets of the organisation;
- Developing a culture of accountability across all levels of the organisation.

The Board is in the process of establishing procedures to identify and evaluate business risks by:

- Identifying the nature, extent and financial implication of risks facing the body including the extent and categories which it regards as acceptable;
- Assessing the likelihood of identified risks occurring;
- Working closely with Government and various Agencies to ensure that there is a clear understanding of the Marine Institute's goals and support for the Institute's strategies to achieve those goals.

The system of internal financial control is based on a framework of regular management information, administration procedures including segregation of duties, and a system of delegation and accountability. In particular it includes:

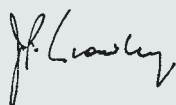
- A comprehensive budgeting system with an annual budget which is reviewed and agreed by the Board;

- Regular reviews by the Board of periodic and annual financial reports which indicate financial performance against forecasts;
- Setting targets to measure financial and other performance;
- Formal project management disciplines.

Marine Institute established an internal audit function in 2005, which will operate in accordance with the Framework Code of Best Practice set out in the Code of Practice on the Governance of State Bodies. The work of internal audit will be informed by analysis of the risk to which the body is exposed, and annual internal audit plans will be based on this analysis. The analysis of risk and the internal audit plans will be endorsed by the Audit Committee and approved by the Board. At least annually, the Internal Auditor will provide the Board with a report of internal audit activity. The report will include the Internal Auditor's opinion on the adequacy and effectiveness of the system of internal financial control. The Board's monitoring and review of the effectiveness of the system of internal financial control will be informed by the work of the internal auditor, the audit committee which oversees the work of the internal auditor, the executive managers within Marine Institute who have responsibility for the development and maintenance of the financial control framework, and comments made by the Comptroller and Auditor General in his management letter.

A review of the effectiveness of the system of internal financial controls was not carried out in 2004, but it is the intention of the Board to conduct this in 2005.

On behalf of the Board:



Dr. J. P. Crowley
Chairman : Marine Institute

ACCOUNTING POLICIES

YEAR ENDED 31 DECEMBER 2004

1. GENERAL

The financial statements have been prepared under the accruals method of accounting, except as stated below, and in accordance with generally accepted accounting principles. Financial reporting standards recommended by the recognised accounting bodies are adopted as they become operative.

2. INCOME

Income arising from Oireachtas Grant in Aid is recognised on a cash receipts basis.

3. FIXED ASSETS AND DEPRECIATION

Depreciation is provided on a straight line basis at rates estimated to reduce the assets to their realisable value by the end of their expected lives. The rates in use are stated as follows:

Buildings	2%
Fixtures & Fittings	25%
Computers	33%
Research Vessel	4%
Research Vessel Equipment	25%
Motor Vehicles	20%
Land is not depreciated	

The rate of depreciation on Computers was increased to 33% and on Fixtures and Fittings to 25% in 2004.

4. LEASED ASSETS

Payments under operating leases (Note 17) are charged to the income and expenditure account in the year to which they relate.

5. CAPITAL ACCOUNT

The Capital Account represents the unamortised value of income applied for capital purposes.

6. FOREIGN CURRENCIES

Monetary assets and liabilities denominated in foreign currencies are translated at the exchange rates ruling at the

Balance Sheet date. Revenues and costs are translated at the exchange rates ruling at the dates of the underlying transactions.

7. MARINE RESEARCH TECHNOLOGY DEVELOPMENT INNOVATION PROJECTS (RTDI)

The Marine Institute enters into commitments in respect of contracts awarded for Marine RTDI projects. Expenditure is charged in the financial statements on the basis of initial payments made on signing of the project contract and further payments are charged on receipt and verification of claims in respect of work completed. Costs incurred by the Institute in the administration of RTDI projects are funded by the NDP and charged to the financial statements as they are incurred.

INCOME AND EXPENDITURE ACCOUNT

YEAR ENDED 31 DECEMBER 2004

		2004		2003	
	Note	€	€	€	€
Income					
Oireachtas Grants	2		22,889,840		23,176,498
Other Income	3		5,362,888		4,758,223
			28,252,728		27,934,721
Transfer (to)/from Capital Account	11		2,139,547		5,225,042
			30,392,275		33,159,763
Expenditure					
Corporate Services	4	5,546,386		5,517,772	
Strategic Planning and Development Services	5	2,861,612		2,677,972	
Marine Environment and Food Safety Services	6	4,549,426		4,768,309	
Fisheries Science Services	7	3,315,100		3,079,966	
Aquaculture and Catchment Management Services	8	2,527,359		2,260,989	
Ocean Science Services	9	9,655,107		8,960,746	
Irish Maritime Development Office	10	991,357		802,292	
Total Expenditure			29,446,347		28,068,046
Surplus for the year			945,928		5,091,717
Surplus at 1 January			5,533,882		442,165
Surplus at 31 December			6,479,810		5,533,882

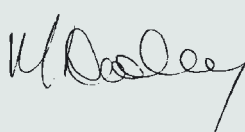
The Institute has no gains or losses in the financial year or the preceding financial year other than those dealt with in the Income and Expenditure account.

The results for the year relate to continuing operations.

The Statement of Accounting Policies and Notes 1 – 21 form part of these financial statements.



Kevin Bonner
Chairman




Mary Dooley
Board Member

BALANCE SHEET

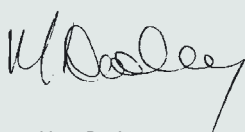
AS AT 31 DECEMBER 2004

	Note	2004		2003	
		€	€	€	€
Fixed Assets					
	12		33,772,666		35,912,213
Current Assets					
Debtors & Prepayments	14	7,833,810		7,083,860	
Banks and Cash		1,817,598			
		9,651,408			7,083,860
Current Liabilities					
Creditors & Accruals	15	3,171,598		1,096,217	
Bank Overdraft				453,761	
		3,171,598		1,549,978	
Net Current Assets			6,479,810		5,533,882
Net Assets			40,252,476		41,446,095
Financed By:					
Capital Account	11	33,772,666		35,912,213	
Income and Expenditure Account		6,479,810		5,533,882	
Total Reserves			40,252,476		41,446,095

The Statement of Accounting Policies and Notes 1 - 21 form part of these financial statements.



Kevin Bonner
Chairman



Mary Dooley
Board Member

CASH FLOW STATEMENT

FOR THE YEAR ENDED 31 DECEMBER 2004

RECONCILIATION OF OPERATING SURPLUS TO NET CASH FLOW FROM OPERATING ACTIVITIES

		2004 €	2003 €
	Note		
Surplus per Income & Expenditure Account		945,928	5,091,717
Interest received			
Transfer (to)/from Capital Account		(396)	(12,630)
		(2,139,547)	(5,225,042)
Depreciation	12	3,710,704	3,283,861
(Increase) in Debtors & Prepayments		(749,950)	(5,623,027)
(Decrease) /Increase in Creditors & Accruals		2,075,381	(820,206)
Net cash inflow from operating activities		3,842,120	(3,305,327)

CASH FLOW STATEMENT

		2004 €	2003 €
	Note		
Net cash inflow from operating activities		3,842,120	(3,305,327)
Returns on investments and servicing of finance			
Interest received		396	12,630
Net capital expenditure			
Acquisition of fixed assets	12	(1,571,157)	(3,197,729)
Adjustment	14		5,138,910
Increase / (Decrease) in cash		2,271,359	(1,351,516)

RECONCILIATION OF NET CASH FLOW TO MOVEMENT IN NET FUNDS

		2004 €	2003 €
	Note		
Increase / (Decrease) in cash		2,271,359	(1,351,516)
Net funds at 1 January		(453,761)	897,755
Net funds at 31 December		1,817,598	(453,761)

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2004

1. GENERAL

The Marine Institute was established on 30 October, 1992 in accordance with the provisions of the Marine Institute Act, 1991,

“to undertake, to co-ordinate, to promote and to assist in marine research and development and to provide such services related to marine research and development, that in the opinion of the Institute will promote economic development and create employment and protect the marine environment”.

The Financial Statements cover the Year Ended 31 December 2004

2. GRANT IN AID

Current Purposes	€	€
Marine Institute	16,862	
Salmon Research Agency	259	17,121
Capital Purposes		
National Seabed Survey	3,679	
Research and Technical Development Infrastructure (RTDI)(Note 13)	2,090	5,769 22,890

	2004		2003	
3. OTHER INCOME	€	€	€	€
EU Contract Research	1,806,347		1,325,448	
Data Directive (see note below)*				
Codling Project			125,824	
Other	692,992		192,278	
		2,499,339		1,643,550
Other Income				
Research Vessel Charterage	635,625		685,000	
Databuoy – Department of Finance	648,768		749,362	
Information Society – Department of Finance	470,000			
Sundry and Other Contract Income	1,109,156	2,863,549	1,680,311	3,114,673
Total		5,362,888		4,758,223

* The Data Directive is a European wide Directive establishing a community framework on the collection and management of data needed to conduct the Common Fisheries Policy.

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2004

4. CORPORATE SERVICES

	2004 €	2003 €
Wages and Salaries	959,089	899,622
Severance and Pension	167,322	207,446
Marine RTDI Fund (2001-2006), National Development Plan (Note 13)	1,161,343	1,343,004
Administration	2,761,010	2,647,267
Depreciation	497,622	420,433
Total	5,546,386	5,517,772

In 2004, the Institute operated a voluntary severance scheme in accordance with terms agreed by the Department of Communications, Marine and Natural Resources and the Department of Finance.

Administration costs include an audit fee of €25,350 in 2004 (2003 : €0)

5. STRATEGIC PLANNING AND DEVELOPMENT SERVICES

	2004 €	2003 €
Wages and Salaries	1,023,429	868,832
Research & Development Programmes	1,551,738	1,602,713
Depreciation	286,445	206,427
Total	2,861,612	2,677,972

6. MARINE ENVIRONMENT AND FOOD SAFETY SERVICES

	2004 €	2003 €
Wages and Salaries : Core staff	1,726,825	1,661,421
EU Contract Staff	69,669	47,691
	1,796,494	1,709,112
Research & Development Programmes	2,223,340	2,502,037
Depreciation	529,592	557,160
Total	4,549,426	4,768,309

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2004

7. FISHERIES SCIENCE SERVICES

	2004 €	2003 €
Wages and Salaries: Core Staff	938,242	783,941
EU Contract Staff	849,149	755,991
	1,787,391	1,539,932
Research & Development Programmes	1,262,657	1,353,340
Depreciation	265,052	186,694
Total	3,315,100	3,079,966

8. AQUACULTURE AND CATCHMENT MANAGEMENT SERVICES

	2004 €	2003 €
Wages and Salaries: Core Staff	1,096,886	967,496
EU Contract Staff	101,681	36,648
	1,198,567	1,004,144
Research & Development Programmes	1,070,087	1,043,380
Depreciation	258,705	213,465
Total	2,527,359	2,260,989

9. OCEAN SCIENCE SERVICES

	2004 €	2003 €
Wages and Salaries	439,393	317,403
Administration & Development Programmes	7,267,677	7,020,327
Depreciation	1,948,037	1,623,016
Total	9,655,107	8,960,746

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2004

10. IRISH MARITIME DEVELOPMENT OFFICE

	2004		2003	
	€	€	€	€
Wages and Salaries		247,503		183,170
Administration & Development Programmes		742,675		618,385
Depreciation		1,179		737
Total		991,357		802,292

Summary of Salary Costs In 2004, The Institute employed 172 staff at a cost of €7,619,188. (€6,729,661 in 2003)

11. CAPITAL ACCOUNT

	2004		2003	
	€	€	€	€
Balance at 1 January		35,912,213		41,137,255
Transfer (to) from Income and Expenditure Account				
Capital Funding	1,571,157		3,197,729	
VAT Refund (Note 14)			(5,138,910)	
Amortisation in line with Asset Depreciation	(3,710,704)	(2,139,547)	(3,283,861)	

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2004

12. FIXED ASSETS

Fixed Assets as stated in the financial statements are made up as follows:

	Land & Buildings €	Research Vessels €	Vessel Equipment €	Fixtures & Fittings €	Computers €	Motor Vehicles €	Total €
Cost or Valuation							
Balance at 1 January 2004	7,015,434	29,043,007	1,953,485	9,629,337	2,948,675	156,382	50,746,320
Additions at cost	—			1,099,770	422,667	48,720	1,571,157
Cost at 31 December 2004	7,015,434	29,043,007	1,953,485	10,729,107	3,371,342	205,102	52,317,477
Depreciation							
Balance at 1 January 2004	703,994	2,786,905	1,362,378	7,553,498	2,341,874	85,458	14,834,107
Charge for the year	140,346	1,161,932	319,397	1,503,082	548,556	37,391	3,710,704
Balance at 31 December 2004	844,340	3,948,837	1,681,775	9,056,580	2,890,430	122,849	18,544,811
Net Book Value							
At 31 December 2004	6,171,094	25,094,170	271,710	1,672,527	480,912	82,253	33,772,666
At 31 December 2003	6,311,440	26,256,102	591,107	2,075,839	606,801	70,924	35,912,213

Included in the gross balance of Land and Buildings is an amount of €1,206,251 which represents the professional valuation of the Fisheries Research Centre in Abbotstown, Dublin at 1 January 1996. Title is vested in the Minister for Agriculture and Food. Subsequent to the Government decision to relocate the Marine Institute to Galway it is envisaged that the Abbotstown facility will be vacated in 2006. As a result the professional valuation at 1 January 1996 has not been revised. The remainder of the assets are stated at cost.

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2004

13. MARINE RTDI FUND (2000-2006), NATIONAL DEVELOPMENT PLAN

The Income and Expenditure in 2004 was as follows:

		2004 €	2003 €
Oireachtas Income	(Note 2)	2,090,000	1,450,000
Expenditure:			
Projects		832,958	1,130,032
Administration		328,385	212,972
Total Expenditure	(Note 4)	1,161,343	1,343,004
Surplus / (Deficit) in year		928,657	106,996

The primary objectives of the Marine RTDI Measure are to enhance and consolidate the performance of the marine sector in Ireland through support for R&D and technology transfer activities and provide the RTDI capacity and infrastructure to enable Ireland to fully utilise her marine resource potential in a sustainable manner.

Expenditure comprises PhD Scholarships, Post Doctorate Scholarships, Michael Manahan Fellowship, Desk Studies, Applied/Industry Projects and Networking projects. A total of 122 projects have been supported from 2002 to 2004.

Marine RTDI Projects awarded are subject to contract which specifies that an initial payment will be made on signing of the contract and that further payments will be made on receipt and verification of claims. Expenditure is charged in the financial statements in accordance with Accounting Policy 7.

At 31 December 2004 payments were outstanding on amounts charged to the financial statements as follows (note 15).

	2004 €	2003 €
Amounts Outstanding	99,868	0,00

At 31st December 2004 commitments entered into but not yet charged to the financial statements in respect of RTDI projects were €5,828,966 with the following breakdown.

2005	4,046,143
2006	1,683,198
2007	99,625

These commitments figures exclude Marine Institute administration of NDP Projects.

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2004

14. DEBTORS AND PREPAYMENTS

	2004 €	2003 €
Trade Debtors	466,214	568,722
Contract Income	1,745,858	1,118,400
Prepayments	482,828	257,828
VAT Refund	5,138,910	5,138,910
	7,833,810	7,083,860

Vat Refund: Capital Funding received by the Marine Institute in previous years was used to fund the purchase of the research vessel, Celtic Explorer, the cost of which was transferred to the capital account in accordance with the Institute's Accounting Policies. The cost included VAT in the amount of €5,138,910. In 2003, the Revenue ruled that the VAT liability on the vessel was zero and the VAT paid was refundable. See also note 11.

15. CREDITORS AND ACCRUALS

	2004 €	2003 €
Trade Creditors	2,477,385	700,913
RTDI Accrual (Note 13)	99,868	
Accruals	79,585	390,219
Payroll	514,760	5,085
	3,171,598	1,096,217

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2004

16. SUPERANNUATION

The Marine Institute is a statutory State agency, established under section 3(1) of the Marine Institute Act, 1991 (No. 2 of 1991). Section 9(1) of the Act provides that the Institute shall make schemes for the granting of superannuation benefits to and in respect of staff members, subject to the approval of the Minister, given with the consent of the Minister for Finance. Two such schemes — the Marine Institute Staff Superannuation Scheme 1998 and the Marine Institute Spouses' and Children's Contributory Pension Scheme 1998 — have being approved and are being operated by the Institute. The former scheme provides retirement benefits (lump sum and pension) to staff members, and death gratuity benefits in respect of death in service. The latter scheme provides pension benefits for the surviving spouses and dependant children of deceased members.

Both schemes are defined benefit superannuation schemes. Superannuation entitlements arising under the schemes are paid out of current income and are charged to the Income and Expenditure Account, net of staff superannuation contributions, in the year in which they become payable.

In common with the generality of public service superannuation schemes, no separate fund is maintained, or assets held, to finance the payment of pensions and gratuities. No provision is made in the financial statements in respect of any liability accruing in regard to future benefits.

For the purposes of reporting in accordance with Financial Reporting Standard 17, Retirement Benefits (transitional arrangements), the Institute has been advised by a qualified actuary. A valuation has been prepared by the actuary in order to assess the liabilities of the superannuation schemes at 31 December 2004.

The major financial assumptions used to calculate liabilities under FRS 17 are as follows:

Inflation rate increase (a)	2% per annum
Salary rate increase	4% per annum
Pension rate increase	4% per annum
Scheme liabilities discount rate	5.5% per annum

On the basis of these and other assumptions and applying the projected unit method prescribed in FRS 17, the pension liability is as follows:

	2004	2003
Accumulated liabilities in respect of active Scheme members	€7.6m	€4.30m
Liabilities in respect of existing pensioners and deferred pensions	€5.3m	€3.30m
Total accrued pension liability	€12.9m	€7.60m

(a) As pension increases under the Marine Institute schemes are based on salary increases rather than on price increases, a price inflation assumption is not necessary for the purposes of this valuation. However, since FRS 17 requires reference to an assumed rate of inflation, the above rate would be appropriate for this purpose.

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2004

Analysis of the amount which would be charged to operating profit

€

Current Service Cost

910

Past Service Cost

—

Analysis of the amount which would be credited to other finance income

Interest on pension scheme liabilities

460

Analysis of the amount which would be recognised in a statement of total recognised gains and losses (STRGL)

Actual return less expected return on Scheme assets

Experience gains and losses

(1,582)

Changes in assumptions underlying the present value of scheme liabilities

(1,420)

Actuarial loss which would be recognised in STRGL

(3,002)

Movement in the deficit during the year

Deficit at the beginning of the year

(7,598)

Current Service Cost

(910)

Interest on Scheme Liabilities

(1,420)

Actuarial loss recognised in the STRGL

(3,002)

Deficit at the end of the year

(12,930)

17. LEASE COMMITMENTS

Operating Leases

The operating lease relates to the lease of the premises at 80 Harcourt Street, Dublin 2. The lease is for a period of 22 years from 1 September 1993. The annual rent is €152,369. There is a rent review every 5 years, with lease breaks in the 7th and 14th year. There are eleven staff based in Harcourt Street with an ongoing requirement to accommodate additional staff on an occasional basis. The Institute is actively seeking more appropriate accommodation for its Dublin based activities.

The Marine Institute entered into a five year lease for its temporary premises at Galway. The lease is for a period of 5 years from 1 February 2002. The annual rent is €302,277. There is no rent review. There are lease breaks in the 3rd and 4th year.

FINANCE LEASES

There was one finance lease commitment at 31 December 2004.

Amounts due within 1 year

€8,770

Amounts due between 2 and 5 years

€16,078

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2004

18. INVESTMENT

The Marine Institute has a 5% shareholding in a company called Wavebob Ltd. This company was established to develop a concept in delivering Wave Energy. The total cost of the investment is €126,974. As it is not possible to accurately assess the value of this investment, the shares are not capitalised in the Balance Sheet.

19. JOINT VENTURE - MARINE TECHNICAL AND DEVELOPMENT SERVICES LTD. (MTDS)

The Marine Institute is a partner in a joint venture company, Marine Technical and Development Services Ltd, which was incorporated in 1998. It holds 51% of the equity capital with the remainder held by Marine Technology Ltd (25%) and another shareholder (24%). MTDS is located in Galway and its primary business is the management, crewing and operation of the research vessels 'Celtic Voyager' and 'Celtic Explorer'. The audited turnover for the year ended 31 December 2004 was €4,511,794 and the profit for the period was €15,154. The total value of transactions entered into with Marine Technical and Development Services Ltd during the period was €4,470,058 excluding VAT.

20. REGISTER OF INTERESTS

The Institute has adopted procedures in accordance with the guidelines issued by the Department of Finance in relation to the disclosure of interest by Board members and the Institute has adhered to these procedures. There were no transactions in the year in relation to the Institute's activities in which board members had a beneficial interest.

21. BOARD APPROVAL

The financial statements were approved by the Board on the 22nd of December 2005.



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